

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
 WESTERN MASSACHUSETTS ELECTRIC COMPANY
 HOLYOKE WATER POWER COMPANY
 NORTHEAST UTILITIES SERVICE COMPANY
 NORTHEAST NUCLEAR ENERGY COMPANY

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June 15, 1988

Docket No. 50-423

B12945

Re: 10CFR50.90

U.S. Nuclear Regulatory Commission
 Attn: Document Control Desk
 Washington, D.C. 20555

- References:
- (1) E. J. Mroczka letter to U.S. Nuclear Regulatory Commission, Proposed Revision to Technical Specifications, Steam Generator Low Low Level Reactor Trip Setpoint, dated February 25, 1988.
 - (2) R. L. Ferguson letter to E. J. Mroczka, Steam Generator Low Low Level Reactor Trip Setpoint (TAC 67365), dated March 30, 1988.
 - (3) E. J. Mroczka letter to U.S. Nuclear Regulatory Commission, Proposed License Amendment, Steam Generator Low Low Level Reactor Trip Setpoint (TAC 67365), dated April 26, 1988.
 - (4) J. F. Opeka letter to B. J. Youngblood, Technical Specification - Protection System Setpoint Study, dated November 18, 1985.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3
 Revision to the Proposed License Amendment
Steam Generator Low Low Level Reactor Trip Setpoint (TAC 67365)

On February 25, 1988, Northeast Nuclear Energy Company (NNECO) submitted a proposed amendment to facility Operating License NPF-49, by incorporating the changes identified in Attachment 1 of Reference (1) into the Technical Specifications of Millstone Unit No. 3. Specifically, the proposed changes would decrease the reactor trip setpoint and engineered safety features actuation system (ESFAS) instrumentation trip setpoint (auxiliary feedwater initiation) for the steam generator water level low low trip setpoint from 23.5% to 20.73% of the narrow range instrument span. The corresponding total allowance (TA), allowable value, and β and S values in Technical Specification Tables 2.2-1 and 3.3-4 were also adjusted. In Reference (2), the Staff requested that NNECO provide additional information concerning three factors associated with the change in the steam generator level low low setpoint.

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During preparations for a recent NRC environmental qualification of electrical equipment audit, it was discovered that certain errors were not considered in the calculation of the steam generator water level low low setpoints for the reactor trip setpoint and ESFAS instrumentation setpoint. Specifically, the instrument loop error due to adverse environmental effects on cables and connectors in containment was not considered in this setpoint calculation. Therefore, in Reference (3), NNECO committed to submit a new proposed Technical Specification change to the NRC by June 15, 1988. Accordingly, NNECO hereby submits a revision to the proposed amendment (Reference (1)) to its Operating License, NPF-49, by incorporating the changes identified in Attachment 1 into the Technical Specifications of Millstone Unit No. 3. This submittal supersedes Reference (1) in its entirety. In addition, NNECO has completed a review of the effects of the cabling insulation resistance error on the reactor trip setpoints included in the Millstone Unit No. 3 Technical Specifications and has determined that the cabling insulation resistance errors associated with other affected reactor trip setpoints are within allowable margin and present setpoints are acceptable.

Specifically, the proposed changes will decrease the reactor trip setpoint and ESFAS instrumentation trip setpoint (auxiliary feedwater initiation) for the steam generator water level low low trip setpoint from 23.5% to 18.10% of narrow range instrument span. This will increase the margin between the steam generator level trip and the normal operating band, and thus be tolerant of operational level transients at the low reactor power level when the steam generator level control is the most difficult. This should reduce the number of reactor trips that occur at low power operation. The corresponding total allowance (TA), allowable value, and Z and S values in Technical Specification Tables 2.2-1 and 3.3-4, are also being adjusted.

Discussion

The revised steam generator water level low low trip setpoint is calculated by the methodology described in WCAP-10991 "Westinghouse Setpoint Methodology for Protection System, Millstone Unit No. 3" (Reference 4), which is also the method used in calculating other setpoints in Table 2.2-1 and 3.3-4 of the Technical Specifications. This methodology was approved by the NRC Staff. The change in the steam generator water level low low trip setpoint is due to the following:

1. During postulated accident conditions the water in the reference leg will heat up. When the water heats to temperatures other than that for which the level transmitter is calibrated, a level error is introduced. The magnitude of this error has been reevaluated. In the original analysis, it was assumed that the reference leg temperature was equal to the maximum calculated containment temperature. This is overly conservative for two reasons. First, the reference legs are insulated. It would be very unlikely that the reference legs would ever reach the maximum calculated containment temperature. Second, the FSAR accident analysis expects the steam generator level low low reactor trip to provide its

protective function within 20 seconds of the event. (The limiting event is the Feedwater System pipe break described in FSAR Chapter 15, Table 15.2-1). The new analysis takes into account the thermal lag due to the insulation and, conservatively evaluates the reference leg temperature 5 minutes after the accident. NNECO has also collected plant data that indicates a nominal reference leg temperature of 125°F, rather than the 100°F assumed in the previous calculation. Because the span between the initial temperature and the accident conditions temperature is smaller, the heatup error is smaller. The original calculated error associated with reference leg heatup was 5.75%. Based on the new analysis the reference leg heatup error is 0.85%.

2. The steam generator water level is monitored by Rosemount and Veritrac transmitters. Westinghouse reported an additional 1.68% environmental allowance error (from 10% to 11.68%) associated with the Veritrac level transmitters. The new setpoint calculation accounts for the updated environmental allowance. The previous calculation did not account for the new environmental allowance error.
3. The FSAR erroneously reported a 3% margin to the safety analysis limit for the steam generator level low low reactor trip. The safety analysis limit used in the design basis accident analysis was 0%. The effect of this error was an extra 3% margin in the steam generator level low low reactor trip setpoint. This extra 3% is not included in the new setpoint analysis.
4. The new setpoint calculation accounts for an additional cabling insulation resistance error, 1.93% for Veritrac transmitters and 2.09% for Rosemount transmitters.

As the Veritrac transmitters exhibit the larger channel statistical allowance (CSA) than Rosemount transmitters they are the limiting case and were used to determine the setpoint. Based upon the above, the new reactor trip setpoint and ESFAS instrumentation trip setpoint (Auxiliary Feedwater initiation) for the steam generator water level low low trip setpoint will be 18.10% of narrow range instrument span.

Significant Hazards Consideration

In accordance with 10CFR50.92, NNECO has reviewed the proposed changes and concluded that they do not involve a significant hazards consideration. The basis of this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve a significant hazards consideration because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated. The revised trip setpoint is consistent with the accident analyses assumption. As recommended in WCAP-10991, the revised calculated value accounts for the instrument uncertainty

including the harsh environmental effects and drifts. The lower calculated value is mainly due to a more accurate calculation of the effect of the reference leg heat-up on the trip setpoint. It accounts for the effect of a harsh environment both on instruments and cables. The lower setpoint does not delay reactor trip or auxiliary feedwater initiation beyond what is assumed in the analysis. Therefore, it is concluded that the proposed changes have no impact on the consequences of the accidents previously evaluated. The proposed changes have no impact on the probability of failure of the reactor protection system and auxiliary feedwater system. Therefore, the proposed changes do not involve an increase in the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any previously evaluated. Since there are no changes in the way the plant is operated, the potential for an unanalyzed accident is not created. There are no new failure modes associated with the proposed changes.
3. Involve a significant reduction in a margin of safety. Since the proposed changes do not affect the consequences of any accident previously analyzed, there is no reduction in a margin of safety. Therefore, it is concluded that the proposed changes do not change the basis or margin of safety as implied in the Technical Specifications.

Moreover, the Commission has provided guidance concerning the application of standards in 10CFR50.92 by providing certain examples (March 6, 1986, FR7751) of amendments that are considered not likely to involve a significant hazards consideration. Although the proposed changes herein are not enveloped by a specific example, the proposed changes would not involve a significant increase in the probability or consequences of an accident previously analyzed. As stated earlier, the lower calculated value is mainly due to a more accurate calculation of the effect of the reference leg heat-up on the trip setpoint. The lower setpoint does not delay reactor trip or auxiliary feedwater initiation beyond what is assumed in the analysis. Therefore, it is concluded that previously analyzed accidents are not affected.

Based upon the information contained in this submittal and the environmental assessment for Millstone Unit No. 3, there are no significant radiological or non-radiological impacts associated with the proposed action, and that the proposed license amendment will not have a significant effect on the quality of the human environment.

The Millstone Unit No. 3 Nuclear Review Board has reviewed and approved the attached proposed revisions and has concurred with the above determinations.

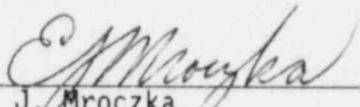
In accordance with 10CFR50.91(b), we are providing the State of Connecticut with a copy of this proposed amendment.

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Pursuant to the requirements of 10CFR170.12(c), enclosed with this amendment request is the application fee of \$150.00.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



E. J. Mroczka
Senior Vice President

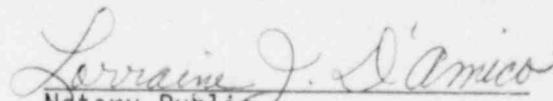
Attachment

cc: Kevin McCarthy
Director, Radiation Control Unit
Department of Environmental Protection
Hartford, Connecticut 06116

W. T. Russell, Region I Administrator
R. L. Ferguson, NRC Project Manager, Millstone Unit No. 3
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me E. J. Mroczka, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensee herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.



Notary Public

My Commission Expires March 31, 1993